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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,947	10/21/2003	Masayuki Fujimoto	038849.52804US	3296

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EXAMINER
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PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/688,947

Applicant(s)

FUJIMOTO, MASAYUKI

Examiner

Hai C. Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figures 5 and 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 2 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyamoto et al. (U.S. 5,900,961).

Miyamoto et al. discloses a scanning optical device comprising a laser scanning unit, wherein the laser scanning unit comprises a frame body (optical casing 1), a semiconductor laser (laser unit 202) for emitting a laser beam, the semiconductor laser

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being installed inside the frame body, a polygon mirror (203) for causing the laser beam to scan on a photosensitive drum (23), a motor (203) for rotating the polygon mirror, the motor being placed inside the frame body and having the polygon mirror mounted (Fig. 7B), and a circuit board (Fig. 7A) for packaging two circuits of a semiconductor laser drive circuit for controlling the driving of the semiconductor laser and a motor drive circuit for controlling the driving of the motor (the IC device 208 being an integrated circuit device, which has dual function of controlling the laser unit 202 and the polygon motor 203) (col. 4, lines 50-56), the circuit board being provided outside the frame body in an area a predetermined distance apart from an area where the motor is placed in the frame body (the circuit board being positioned outside the optical casing 1 separate from the laser unit and the motor by an opening of the cover 212 such that "the IC device 208 is in contact with the external air") (col. 4, lines 57-67).

Miyamoto et al. further teaches the scan start position detector comprising a photodiode (the horizontal synchronization signal detecting unit 207 including a photodiode) (col. 4, lines 41-45).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al.

Although Miyamoto et al. does not elaborate on the mounting assembly of the polygon motor in the third embodiment, Miyamoto et al. does however teach the polygon motor being mounted to the optical casing (1) via a base plate (2) through a recess made in an extension of the wiring board (11) as shown in the first and second embodiments, the base plate having exclusively a motor mounting function (col. 2, lines 36-56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the third embodiment of Miyamoto et al. to include the mounting support disposed between the polygon motor and the optical casing to support the polygon motor. The motivation for doing so would have been to provide a sturdy support for the polygon mirror as well as to suppress vibration generated during the rotation of the polygon mirror.

6. Claims 3, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Yoshino (JP 7-178957).

Miyamoto et al. discloses all the basic limitations of the claimed invention including the scan start position detector comprises a photodiode (the horizontal synchronization signal detecting unit 207 including a photodiode) (col. 4, lines 41-45), but except for the circuit board being made of paper phenol.

Yoshino discloses a laser printer, which includes a simple low cost electric circuit substrate (14) made of paper phenol on which a circuit pattern (32) is formed including a drive IC for driving a semiconductor laser.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use paper phenol for the circuit board in the device of Miyamoto et al. as taught by Yoshino. The motivation for doing so would have been to provide a low cost, small size and simple circuit board structure, which further prevents any short-circuit event as suggested by Yoshino at paragraph [0025].

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Herloski et al. (U.S. 4,355,859).

Miyamoto et al. discloses all the basic limitations of the claimed invention except for the laser being angularly adjustable.

Herloski et al. discloses a raster scanning apparatus having a laser for generating a scanning beam, the apparatus is wherein the laser is provided with an assembly for angularly adjusting the position of the laser so as to align the laser beam with the optical axis of the scanner (col. 1, line 62 to col. 2, line 35).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the adjustable mechanism for adjusting the position of the laser in the device of Miyamoto et al. as taught by Herloski et al. The motivation for doing so would have been to allow the laser printer to align the laser beam with the optical axis of the optical scanner as suggested by Herloski et al.

8. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Asada et al. (U.S. 6,552,987).

Miyamoto et al. discloses all the basic limitations of the claimed invention except for the flexible cables with a plurality of wires.

However, it is well known in the art to use a flexible cable to electrically interconnect different electronic parts within the recording apparatus as evidenced by Asada et al., which teaches using a flexible cable (6) of multiple wires for connecting the laser drive circuit (1) with the various electronic components to carry the necessary signals to drive the laser light source.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the flexible cable into the device of Miyamoto et al. The motivation for doing so would have been to provide a flexible interconnection, which simultaneously carries multiple signals to different electronic components.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Asada et al., as applied to claims 1, 6 above, and further in view of Ono et al. (JP 2001-337291).

Miyamoto et al., as modified by Asada et al., discloses all the basic limitations of the claimed invention except for the hole in the frame body through which the flexible cable is disposed for connecting the circuit board and the motor.

Ono et al. discloses an optical writing unit having a drive circuit board (113) for driving the polygon motor, the drive circuit board being disposed external to the optical housing (114) wherein a hole is provided in the frame of the optical housing to allow the electric wire rod (120) to reach the polygon mirror forming a connection between the drive circuit board and the polygon mirror (English translation, paragraph [0009]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a hole in the frame body of the optical housing of the device of Miyamoto et al. as taught by Ono et al. for the purpose of allowing the external drive circuit board to electrically connect to the polygon mirror encased in the optical housing.

10. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Yoshino, Herloski et al. and Asada et al.

Miyamoto et al. discloses all the basic limitations of the claimed invention (please refer to the rejection of the limitations stated in paragraphs 3 and 5 above) except for the circuit board being made of paper phenol.

Yoshino discloses a laser printer, which includes a simple low cost electric circuit substrate (14) made of paper phenol on which a circuit pattern (32) is formed including a drive IC for driving a semiconductor laser.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use paper phenol for the circuit board in the device of Miyamoto et al. as taught by Yoshino. The motivation for doing so would have been to



provide a low cost, small size and simple circuit board structure, which further prevents any short-circuit event as suggested by Yoshino at paragraph [0025].

Miyamoto et al. also fails to teach the laser being angularly adjustable.

Herloski et al. discloses a raster scanning apparatus having a laser for generating a scanning beam, the apparatus is wherein the laser is provided with an assembly for angularly adjusting the position of the laser so as to align the laser beam with the optical axis of the scanner (col. 1, line 62 to col. 2, line 35).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the adjustable mechanism for adjusting the position of the laser in the device of Miyamoto et al. as taught by Herloski et al. The motivation for doing so would have been to allow the laser printer to align the laser beam with the optical axis of the optical scanner as suggested by Herloski et al.

Miyamoto et al. also fails to teach the flexible cables with a plurality of wires.

However, it is well known in the art to use a flexible cable to electrically interconnect different electronic parts within the recording apparatus as evidenced by Asada et al., which teaches using a flexible cable (6) of multiple wires for connecting the laser drive circuit (1) with the various electronic components to carry the necessary signals to drive the laser light source.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the flexible cable into the device of Miyamoto et al. The motivation for doing so would have been to provide a flexible

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interconnection, which simultaneously carries multiple signals to different electronic components.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Yoshino, Herloski et al. and Asada et al., as applied to claim 1 above, and further in view of Ono et al.

Miyamoto et al., as modified, discloses all the basic limitations of the claimed invention except for the hole in the frame body through which the flexible cable is disposed for connecting the circuit board and the motor.

Ono et al. discloses an optical writing unit having a drive circuit board (113) for driving the polygon motor, the drive circuit board being disposed external to the optical housing (114) wherein a hole is provided in the frame of the optical housing to allow the electric wire rod (120) to reach the polygon mirror forming a connection between the drive circuit board and the polygon mirror (English translation, paragraph [0009]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a hole in the frame body of the optical housing of the device of Miyamoto et al. as taught by Ono et al. for the purpose of allowing the external drive circuit board to electrically connect to the polygon mirror encased in the optical housing.

With regard to Applicant's argument related to the limitation in claim 4, although Miyamoto et al. does not elaborate on the mounting assembly of the polygon motor in the third embodiment, Miyamoto et al. does however teach the polygon motor being

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mounted to the optical casing (1) via a base plate (2) through a recess made in an extension of the wiring board (11) as shown in the first and second embodiments, the base plate having exclusively a motor mounting function (col. 2, lines 36-56). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the third embodiment of Miyamoto et al. to include the mounting support disposed between the polygon motor and the optical casing to support the polygon motor. The motivation for doing so would have been to provide a sturdy support for the polygon mirror as well as to suppress vibration generated during the rotation of the polygon mirror.

### ***Response to Arguments***

12. Applicant's arguments filed 03/14/06 have been fully considered but they are not persuasive.

Applicant argues that "Miyamoto et al. fails to disclose a circuit board as recited in claim 2, which is provided outside the frame body". The examiner respectfully disagrees. Miyamoto et al. teaches in Figs. 7A-7B a cover (212) being provided to cover the components of the optical scanning device, including the laser unit, the polygon mirror and the lenses, and the rib (212-1) integrally formed with the cover to seal the above-mentioned components within the housing (201) (col. 4, lines 57-60) while leaving the circuit board on which is mounted the IC device (208) outside of the housing such that "the IC device 208 is in contact with the external air" (col. 4, line 65) so as to obtain the cooling effect.

Applicants further argues that "the use of a paper phenol circuit board prevents short circuiting when mounting electrical components on both sides of the circuit board", and that there is no "desire for mounting electrical components on both sides of a circuit board" in Miyamoto et al. However, Yoshino describes the advantage of using the paper phenol circuit board to prevent short circuiting, and then suggests that by taking this advantage into account one can mount the electrical components on both sides of the circuit board, which would only require a small foot print and would further cut cost (Yoshino, English translation, paragraph [0025]). In other word, Yoshino does not teach that the electrical components have to be mounted on both sides of the circuit board. Therefore, the motivation to combine the teachings of Miyamoto et al. and Yoshino is clearly suggested by Yoshino.

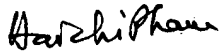
#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM  
PRIMARY EXAMINER

May 24, 2006